TITLE OF THE INVENTION

Sunshade

CROSS-REFERENCE TO RELATED APPLICATIONS

Not applicable

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not applicable

INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC

Not applicable

BACKGROUND OF THE INVENTION

Field of the Invention

This invention relates generally to bimini tops and T-tops for boats and open-sided generally horizontal shade cover assemblies for vehicles, and more particularly to a low sun angle sunshade attachable to a side or end margin of such tops.

Description of Related Art

Horizontally disposed sun covers for boats and other conventional land vehicles are well known and in widespread use. With respect to boats, such sun covers are in the form of flexible fabric bimini tops having rigid aluminum or stainless steel tubular bows for structural support or T-tops formed of rigid segments of tubular welded aluminum or stainless steel which provide a more rigid permanent overhead weather and sun cover structure therefor. With respect to conventional land vehicles, completely open-sided sun covers are also well known for utility vehicles such as lawn mowers, tractors and the like, providing sun protection for the operator of such land vehicles. A number of prior art

devices associated with overhead shade cover assemblies and devices are disclosed in the following U.S. Patents:

U.S. Patent 6,439,150	Murphy
U.S. Patent 5,419,604	Clark
U.S. Patent 5,121,703	Smith
U.S. Patent 4,781,411	Kolb
U.S. Patent 2,032,046	Coonradt
U.S. Patent 5,240,020	Byers
U.S. Patent 5,983,824	Hernandez
U.S. Patent 4,865,381	Van Rogue
U.S. Patent 5,918,613	Larson
U.S. Patent 6,349,666	Hastings
U.S. Patent 5,579,797	Rogers

Of particular interest is the sun cover assembly disclosed in U.S. Patent 6,439,150 by Murphy. This disclosure teaches a sun cover assembly adapted to be carried on the tower of a boat positioned above the cockpit area.

A sunshade attachment invented by Van Rogue in U.S. Patent 4,865,381 teaches a sunshade attachment for a lounging chair formed of tubular aluminum structure suitable for attachment thereto at the upper transverse portion of the support back area of such chairs.

A clear view hard curtain device is disclosed in U.S. Patent 5,121,703 invented by Smith. This invention is directed to a plurality of separable frames each including one semi-rigid clear flat panel and a flexible frame surrounding the panel. A pivotal visor for

marine vessels is disclosed by Clark in U.S. Patent 5,419,604 teaching a visor/windshield assembly for mounting on a vessel.

During the early morning and late evening time periods, the sun, being low to the horizon, causes sunlight to strike the eyes and face of a boat or vessel operator even when positioned beneath a bimini top or a T-top. These tops are typically substantially horizontally oriented to shield passengers and operator primarily from direct overhead sunlight during the central part of the day. Additionally, even during the mid portion of the day, sunlight reflecting from the water surface will also shine into the eyes and face and upper torso of a user causing undesired sunburns and sore eyes and obstructed vision.

The present invention specifically this heretofore unsatisfied need of providing sunshade into the face and eyes of a user both with respect to low sun angle, the elements, and reflected light form the water's surface.

BRIEF SUMMARY OF THE INVENTION

This invention is directed to a low sun angle sunshade preferably adapted to be attached to and carried on a rigid side or end margin of a bimini top or T-top for a boat. The shade includes an elongated shade panel formed of substantially opaque material and pivotal connectors on one longitudinal margin of the shade panel adapted for attachment to, and selected pivotal movement of, the shade panel with respect to the side or end margin of the bimini top or T-top. The shade panel is thereby selectively pivotally moveable about a pivotal axis passing through the pivotal connectors between a deployed or outstretched downwardly extending position with respect to the bimini top or T-top wherein low-to-the-horizon sun is substantially blocked from a boat operator's or passenger's eyes and a stored position doubled over and positioned against a

corresponding side or end portion of the bimini top or T-top or frame therefor. Collapsible embodiments are also provided.

It is therefore an object of this invention to provide an accessory attachment to either a bimini top or a T-top of a boat and other sun cover assemblies for land vehicles and the like which provides eye and face protection primarily from the sun when at a very low angle as during early morning and evening time periods.

Still another object of this invention is to provide a shade and weather shade which is attachable to and deployably downwardly from a rigid support margin of a bimini top or a T-top which will also provide protection to the eyes and face from rain when the boat is underway.

Yet another object of this invention is to provide a shade attachable to the rear margin of a T-top which also includes fishing devices attached to the rearward end of the T-top and which rearwardly extends therefrom.

Still yet another object of this invention is to provide a shade attachable to a side or end margin of a bimini top or a T-top of a boat which is easily pivotable, foldable or collapsible into a stored or not-in-use position or configuration so as to be otherwise unobtrusive when stored.

In accordance with these and other objects which will become apparent hereinafter, the instant invention will now be described with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)

Figure 1 is a pictorial schematic view of one aspect of the present invention in use on a flexible bimini top of a boat.

Figure 2 is a schematic view of another aspect of the invention attached along both side margins and end margins of a rigid framed T-top of a boat.

Figure 3 is a perspective view of a collapsible embodiment of the invention in the deployed configuration.

Figure 4 is a view similar to Figure 3 showing this embodiment in a collapsed or stored configuration.

Figure 5 is a perspective view of a rigid framed embodiment of the invention attached to a rigid side or end margin of a T-top.

Figure 6 is a view similar to Figure 5 showing the pivotal storing movement of this embodiment.

Figure 7 is a perspective view of yet another embodiment of the invention attached to and positioned rearwardly of fishing devices attached to the rigid rearward margin of a T-top.

Figure 8 is a view similar to Figure 7 showing the pivotal deployment thereof from the stored position above the T-top.

Figure 9 is a perspective view of another collapsible embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings, and particularly to Figure 1, one aspect of the invention is there shown generally at numeral **10** in conjunction with a conventional flexible fabric bimini top **12** having frame formed tubular bows attached to the gunnel **D** of a boat **B**. The bimini top **12** typically includes flexible fabric material which is stretched and held in place over the tubular frame of bimini top **12**.

In this embodiment **10**, a low sun angle shade **14** is provided attached to the rearward tubular bow **16** of the bimini top **12** as described in more detail in Figures 3 and 4. A side sunshade **18** is also pivotally connected to a side margin **20** of the bimini top **12**. Each of the shades **14** and **18**, when pivotally or collapsibly downwardly deployed as shown, provides substantial eye and face protection for occupants of the boat **B** from low angle sun, reflected sunlight and rain when the boat **B** is underway.

Referring now to Figure 2, a typical rigid-framed T-top **30** is there shown which is formed of rigid tubular members **E** welded together into the structure shown which is anchored to the deck of the boat and positioned above the console and central area of the boat. Opaque fabric **26** is typically stretched and held taught across the frame of such T-tops **30** for economy, serviceability and lighter weight structure.

In this embodiment **24** of Figure 2, a shade **28** having a rigid open frame **36** covered with opaque material such as flexible canvas, plastic, vinyl or fiberglass sheet, is pivotally attached to and rearwardly positioned from fishing devices **40** which are attached to the rearward tubular margin **38** of the T-top **30**. Two spaced extension brackets **32** and **34** are attached at forwardly ends thereof to the rearward margin **38** of the T-top **30** and are described in more detail with respect to Figures 7 and 8.

Side sunshades **50** and **60** also having rigid or semi-rigid open perimeter frames **52** and **62**, respectively, are each pivotally connected by lockable pivotal members **56** and **66** to the side tubular margins **54** and **64**, respectively, of the T-top **30** to provide the adjustable pivotal support and positioning of each of these side sunshades **50** and **60**. A front sunshade **80** attached by pivotal locking connectors **86** to the forwardly tubular margin **84** of the T-top **30** is also provided.

Referring now to Figures 3 and 4, one embodiment of a collapsible, as opposed to a pivotally deployable and storable, embodiment is there shown generally at numeral **14** and as previously generally described with respect to Figure 1. This embodiment **14** is formed having an elongated rigid or semi-rigid aluminum or plastic support member **96** which is attached to the rearward tubular frame member **16** of the bimini top **12**. Flexible canvas fabric **22** extends over the frame members of the bimini top **12** as previously described.

Two spaced connecting members **100** provide for both lateral positioning of the sunshade **14** laterally in the direction of arrow **H** with respect to the rear frame member **16** and also provide for some pivotal movement in establishing the desired downward orientation of support member **96**. Two downwardly pivotable elongated side frame members **92** and **94** are connected to the ends of support member **96** at pivotal connections **102** and **104** whereby the side frames **92** and **94** are pivotable to the deployed position in the direction of arrows **F** and **G** and are pivotable to the stored position shown in Figure 4 in the direction of arrows **J** and **K**, respectively.

A flexible shade panel **90** formed of opaque material as previously described is attached along three of its generally rectangular margins along support member **96** and along side frames **92** and **94**. When deployed as shown in Figure 3, the free distal lower margin **110** is tensioned by tensioning members **106** and **108** which are pivotally attached between the lower distal end of each of the side frames **92** and **94** and to a central portion along the support members **96** as shown. In Figure 4, VELCRO securing straps **98** hold the side members **92** and **94** and the flexible shade panel **90** in the stored position along side of the support member **96**.

Referring now to Figures 5 and 6, another embodiment of the invention is there shown generally at numeral **110** attached to a rearward or sideward tubular frame member **118** of a T-top **112**. The shade **110** is formed having a rigid or semi-rigid aluminum, stainless steel, fiberglass, plastic or the like open rectangular perimeter frame **114** and having a flexible opaque canvas panel **116** taughtly stretched thereacross and held in place by plastic lacing material as shown. One longitudinal margin of the perimeter frame **114** is attached by two spaced connectors **122** of a conventional design which are both pivotable and then lockable in any desired relative angular orientation about axis **126** by locking handle **124**. One end of each connector **122** is rigidly attached to the perimeter frame **114** while the other end of each connector **122** is attached adjacent to the side or end of tubular frame member **118** of bimini top **112**. By this slight offset arrangement of each end of each locking connector **122**, the sunshade **110** is pivotally connectable about axis **126** from the deployed to the stored position as depicted in Figure 6 in the direction of arrow **L1** or **L2**, respectively, while offset adjustment is achievable about axis **128** of connectors **122** attached to T-top frame member **118**.

As seen in Figure 6, the sunshade **110** may be stored by pivotal movement in the direction of arrow **L1** and finally down to and against the upper surface **120** of T-top **112** in the direction of arrow **M**. However, the sunshade **110** may also be pivotally storable in the direction of **L2** to a position against the underside of the T-top surface **120**. The embodiment of the locking pivotal members **122** are in the form of an antenna base having a locking adjustment utilized for VHF boat antennas.

Referring now to Figures 7 and 8, the previously generally described embodiment of the sunshade **28** in Figure 2 is there shown in detail. This sunshade embodiment **28** is

also formed of a rigid open perimeter frame **36** having a canvas or plastic opaque central surface **146** held in place by lacing material as shown.

This form of T-top **30** commonly includes fishing devices **144** which may be in the form of trolling fishing rod holders or what are referred to as "rocket launchers". These fishing devices **144** are typically permanently attached as by welding or clamping devices to the rear tubular margin **142** of the T-top **30**. To provide adequate clearance for the proximal longitudinal margin **148** of perimeter frame **36**, two spaced rigid extension arms **32** and **34** are provided. A proximal end of each of these arms **32** and **34** is connected to the tubular perimeter frame of the T-top **30** in the vicinity of the ends of the rearward T-top frame member **142** as shown. These connectors **132** have locking handles **136** which operatively engage mating serrations or teeth such as are found in a support base for VHF antennas as previously referenced. This form of connector **132** generally provides both rotational adjustability about axis **140** of the angular positioning of each of the extension arms **32** and **34** and then the locking engagement of the selected rotational orientation thereafter.

The distal or rearward portion of the extension arms **32** and **34** are likewise lockably positionable by connectors **130** having locking handles **134** associated therewith which operate in the same fashion as do the locking connectors **132** previously described. By this arrangement, the sunshade **28** is pivotally positionable and lockable in any desired deployed or stored position about a second transverse pivotal axis **138** which is spaced apart from, and preferably oriented parallel to the first pivotal axis **140**.

As thus best seen in Figure 8, the sunshade **28** is pivotally deployable from a stored position either above the T-top fabric **26** or therebeneath in the direction of arrow **N** so as to provide non-interfering clearance with respect to the fishing devices **144**.

Referring lastly to Figure 9, another embodiment of a collapsible aspect of the invention is there shown generally at numeral **150**. This sunshade embodiment **150** includes an elongated rigid support member **166** which is attached to the connectors **100** or **122** to frame member **16** of bimini top **12** as previously described. This sunshade **150** includes two elongated flexible, resilient hollow bows **152** and **154** which are connected to the ends of frame member **166** at pivotal connections **158** and **160**, respectively. Bow **152** is larger in diameter than bow **154** so as to provide operative overlapping telescopic engagement therebetween in the area of **156**. Locking pin **162** interacts between mating aligned apertures in the overlapping bow portions at **156** to secure the deployed configuration of these support bows **152** and **154** as shown. A sheet of flexible opaque material **164** is attached to the support member **166** and to each of the bows **152** and **154** in slidable sleeve-like fashion.

To deploy this sunshade **150**, the user simply detaches VELCRO straps **98** and then pulls the central portion **156** downwardly in the direction of arrow **P** from the stored position of the bows **152** and **154** and opaque fabric material **164** (shown in phantom) and, when pin **162** is biasingly urged through preselected aligned apertures in the two distal portions of each of the bows **152** and **154**, deployment is established. Pivotal storage of the collapsed configuration (shown in phantom) is further enhanced by the loosening of connectors **100** or **122** about bimini frame members **16** to allow for further pivotal movement about transverse pivotal axis **168**.

While the instant invention has been shown and described herein in what are conceived to be the most practical and preferred embodiments, it is recognized that departures may be made therefrom within the scope of the invention, which is therefore not to be limited to the details disclosed herein, but is to be afforded the full scope of the claims so as to embrace any and all equivalent apparatus and articles.